WHAT IS CLAIMED IS:

1. A multivariate space processing method, comprising:

degenerating multivariate data into three predetermined variates;

determining a reference variate to serve as a reference among the three variates;

acquiring a first two-dimensional space formed by the remaining two variates when the reference variate takes a first value;

acquiring a second two-dimensional space formed by the remaining two variates when the reference variate takes a second value; and

computing a matching between the first two-dimensional space and the second two-dimensional space.

2. A method according to Claim 1, wherein the first and second two-dimensional spaces are regarded as a first image and a second image, respectively, and the matching is computed pixel by pixel based on correspondence between a critical point detected through a two-dimensional search on the first image and a critical point detected through a two-dimensional search on the second image.

3. A method according to Claim 2, further comprising:

multiresolutionalizing the first image and the second image by respectively extracting the critical points;

performing a pixel-by-pixel matching computation on the first image and the second image at the same multiresolution level; and

acquiring a pixel-by-pixel correspondence relation at a finer level of resolution while inheriting a result of the pixel-by-pixel matching computation from a matching computation at a different multiresolution level.

4. A method according to Claim 1, further comprising: generating an intermediate two-dimensional space based on the first two-dimensional space and the second two-dimensional space by performing an interpolation computation based on a result of said matching computation.

5. A method according to Claim 4, further comprising: displaying the intermediate two-dimensional space.

6. A method according to Claim 4, further comprising: comparing a virtual intermediate two-dimensional space obtained from the matching computation and an authentic intermediate two-dimensional space obtained based on a

MN-70022

predetermined value of the multivariate data.

7. A method according to Claim 6, wherein the virtual intermediate two-dimensional space and the authentic intermediate two-dimensional space are compared while changing the predetermined variates.

8. A method according to Claim 6, wherein the virtual intermediate two-dimensional space and the authentic intermediate two-dimensional space are compared while changing the selection of the reference variate.

9. A method according to Claim 6, wherein the virtual intermediate two-dimensional space and the authentic intermediate two-dimensional space are compared while changing the first value and the second value.

10. A method according to Claim 6, wherein the virtual intermediate two-dimensional space and the authentic intermediate two-dimensional space are compared after a predetermined conversion is performed on the first and second two-dimensional spaces.

11. A multivariate space processing method, comprising:

acquiring a first image and a second image by projecting three-dimensional data on a predetermined plane; and

computing a matching between the first image and the second image.

12. A method according to Claim 11, wherein the matching is computed pixel by pixel based on correspondence between a critical point detected through a two-dimensional search on the first image and a critical point detected through a two-dimensional search on the second image.

13. A method according to Claim 12, further comprising:

multiresolutionalizing the first image and the second image by respectively extracting the critical points;

performing a pixel-by-pixel matching computation on the first image and the second image at the same multiresolution level; and

acquiring a pixel-by-pixel correspondence relation at a finer level of resolution while inheriting a result of the pixel-by-pixel matching computation from a matching computation at a different multiresolution level.

14. A method according to Claim 11, further comprising: generating an intermediate image of the first image and the second image by performing an interpolation computation based on a result of said matching computation.

15. A multivariate space processing apparatus, comprising:

a preprocessing unit which degenerates multivariate data into three predetermined variates;

a conversion unit which determines a reference variate from among the three variates to serve as a reference, acquires, as a first image, a two-dimensional space formed by the remaining two variates when the reference variate takes a first value, and acquires, as a second image, a two-dimensional space formed by the remaining two variates when the reference variate takes a second value; and

a matching processor which computes a matching between the first image and the second image.

16. An apparatus according to Claim 15, wherein said matching processor computes the matching pixel by pixel based on correspondence between a critical point detected through a two-dimensional search on the first image and a critical point detected through a two-dimensional search on the second image.

17. An apparatus according to Claim 16, wherein said matching processor multiresolutionalizes the first image and the second image by respectively extracting the critical points, performs a pixel-by-pixel matching computation on the first image and the second image at the same multiresolution level, and acquires a pixel-by-pixel correspondence relation at a finer level of resolution while inheriting a result of the pixel-by-pixel matching computation from a matching computation at a different multiresolution level.

18. An apparatus according to Claim 15, further comprising an intermediate image generator which generates an intermediate image of the first image and the second image by performing an interpolation computation based on a result of the matching computation.

19. A multivariate space processing apparatus, comprising:

a conversion unit which acquires a first image and a second image by projecting three-dimensional data on a predetermined plane; and

a matching processor which computes a matching between the first image and the second image.

20. An apparatus according to Claim 19, wherein said matching processor computes the matching pixel by pixel based on correspondence between a critical point detected through a two-dimensional search on the first image and a critical point detected through a two-dimensional search on the second image.

21. An apparatus according to Claim 20, wherein said matching processor multiresolutionalizes the first image and the second image by respectively extracting the critical points, performs a pixel-by-pixel matching computation on the first image and the second image at the same multiresolution level, and acquires a pixel-by-pixel correspondence relation at a finer level of resolution while inheriting a result of the pixel-by-pixel matching computation from a matching computation at a different multiresolution level.

22. An apparatus according to Claim 19, further comprising an intermediate image generator which generates an intermediate image of the first image and the second image by performing an interpolation computation based on a result of the matching computation.

23. A computer program executable by a computer, the program comprising the functions of:

degenerating multivariate data into three predetermined variates;

determining a reference variate to serve as a reference among the three variates;

acquiring a first two-dimensional space formed by the remaining two variates when the reference variate takes a first value;

acquiring a second two-dimensional space formed by the remaining two variates when the reference variate takes a second value; and

computing a matching between the first two-dimensional space and the second two-dimensional space.

24. A computer program executable by a computer, the program comprising the functions of:

acquiring a first image and a second image by projecting three-dimensional data on a predetermined plane; and

computing a matching between the first image and the second image.